

## REMARKS

Claims 1-34 are pending and have been rejected. Claim 35 has been added. Claims 1-35 remain in the case.

Claims 1-34 are rejected under Section 103(a) based on Atchinson *et al.* (US 6,371,637) in view of Pichler *et al.* (US 5,929,562). The examiner urges that Atchinson *et al.* discloses “a method for providing a replaceable light source comprising the steps of manufacturing a light source (32) on a flat, flexible substrate (37) in a substantially two-dimensional configuration and flexing and removably placing the light source (2) in a curved three dimensional configuration within a lighting fixture (not shown).” The examiner admits that Atchinson *et al.* do not disclose the method of shipping the light source, but he argues that “it was a well known and widely used practice to those of ordinary skill in the art to ship a two-dimensional product in a two dimensional configuration to simplify packing, and therefore would have been obvious to the same.”

In response to applicant's argument that Atchinson *et al.* do not disclose the light source can be flexed and removably placed in a light fixture, the examiner asserts that this feature is taught in the column 4, lines 1-25 of Atchinson *et al.*, and additionally in column 1 lines 20-25, urging that various possible fixtures are listed. The cited portions are as follows:

In typical embodiments, an array length might vary from about a few inches to several feet, and the array itself can be adaptively configured to a desired length by merely cutting the desired length from a roll, as will be described in greater detail below. The high-density, low-profile, flexible light emitting diode array is very compact and elegant which enables it to be used for a number of sophisticated interior applications, such as volume or accent highlighting, architectural and landscaping delineation, and the like. Additionally, the high density, low-profile, flexible light emitting diode array is able to deliver a very high light output (light intensity) per 15 unit volume, which enables the light emitting diode array to be used for various industrial, safety and other exterior utility applications, such as vehicle lighting systems, marker lights, building safety lamps, and the like. Flexibility is a further advantageous feature of the light emitting diode array which is configured such that is able to be flexed or bent into extremely compound or complex shapes including those with a very small radius of curvature. When a flexible strip of the light emitting array is affixed to an interior rear window or ceiling of an automobile, for example,

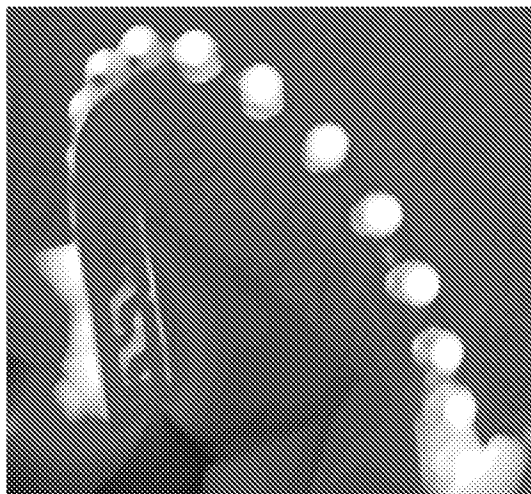
as an auxiliary brake light, the extremely thin and narrow profile of the array does not substantially block a driver's vision nor does it substantially intrude into the limited interior space of the passenger compartment of the vehicle.

and

Typically, such lighting systems are arranged in generally linear rows and are disposed so as to provide decorative, advertising or safety oriented light sources. Conventionally, these lighting system rows might be attached to a wire string such as exemplified by a "string of lights" used for Christmas tree decorations.

Thus, the cited portions teach a diode *array* that is flexible. However, they do not teach a light source that is flexed and removably placed in a curved three dimensional configuration within a lighting fixture. Each diode in the array is a light source, and each diode is inflexible. The patent provides the very helpful and illustrative example of Christmas lights on a wire. The array of lights on the wire is flexible, however, each of the little lights on the wire is inflexible. Therefore, this does not meet applicant's claimed recitation of "flexing the single, flat, flexible, two-dimensional substrate of the light source and removably placing the light source in a curved three dimensional configuration within a lighting fixture." The individual light sources on the string of Christmas lights are not flexed in order to removably place them into the lighting fixture.

Another familiar embodiment of the invention disclosed in Atchinson is the flexible plastic tubing with diodes that can be fitted around the rear window of an automobile and elsewhere on the car. Here again, the light sources themselves are inflexible and are not flexed in order to removably place them in the plastic:



This resulting product in Atchinson *et al.* is designed to be affixed, for example, to the rear windshield of a car (column 4, line 22-24) or on the exterior side panel of a vehicle (column 4, lines 56-57). It is not removably placed within a lighting fixture. Thus, there is no teaching in Atchinson *et al.* of “removably placing the light source in a curved three dimensional configuration within a lighting fixture.”

Thus, the allegation that Atchinson *et al.* discloses “the light source can be flexed and removably placed in a light fixture” is not supported by the teaching in Atchinson. Nor does Atchinson teach “manufacturing an area emitting light source by depositing a flexible organic light emitting diode layer on a single, flat, flexible, two-dimensional substrate, said flexible organic light emitting diode layer including two electrodes, at least one of the electrodes being transparent.” The Examiner urges, with respect to claim 1, that Atchinson discloses the step of manufacturing a light source (32) on a flat, flexible substrate (37) in a substantially two-dimensional configuration. However, the light source is not manufactured **on** a flat, flexible substrate. The light sources in Atchinson, the LEDs are manufactured separately on a crystalline substrate and then mounted by soldering onto a flexible printed circuit board (“Each of the light emitting diode elements 32 are surface mounted to a flexible substrate, in particular, a class A or class B flex circuit board, as defined by MIL-STD-2118” – col. 5, lines 16-18).

Moreover, there is no “lighting fixture” in Atchinson, a significant deficiency in the alleged *prima facie* case of obviousness. Indeed, the Examiner admits that the lighting fixture is “not pictured” (page 2 of the Final Rejection, 3 lines from the bottom). This is not a matter

of Atchinson mentioning a lighting fixture that is "not shown," as is often done in a disclosure. There is simply *no mention at all* of a lighting fixture in Atchinson, shown or not shown. The Examiner has not even suggested into what sort of lighting fixture the light source 20 of Atchinson would be removably placed.

Atchinson does not picture a lighting fixture (as defined in claim 1) because there is no corresponding lighting fixture in Atchinson. The Examiner has failed to provide a reasonable argument for the existence of a lighting fixture in Atchinson. The flexible substrate and point-light sources of Atchinson cannot be both the light source and the lighting fixture.

In his response to arguments, the Examiner asserts that the feature of flexing a light source and removably placing it in a light fixture is taught in Atchinson col. 4, lines 1-25 and col. 1, lines 20-25. If each individual point-emitting LED is considered to be a light source, and the flexible printed circuit board substrate is considered to be the flat flexible substrate of claim 1, (as argued by the Examiner on page 2 of the Final Rejection, there is then no teaching in Atchinson of a light fixture into which Atchinson's printed circuit board is flexed and removably inserted.

In col. 4, lines 1-25 of Atchinson, which was cited by the Examiner, Atchinson states that "Flexibility is a further advantageous feature of the light emitting diode array, which is configured such that it is able to be flexed or bent into extremely compound or complex shapes including those with a very small radius of curvature. When a flexible strip of the light emitting array is affixed to an interior rear window or ceiling of an automobile, for example, as an auxiliary brake light..." (lines 20-25). In col. 4, lines 11-13, architectural and landscaping applications are listed; marker lights and building safety lamps are noted in col. 4, lines 17-18. To assert that this teaches "flexing and removably placing the light source in a curved three dimensional configuration within a lighting fixture." as recited in claim 1, requires that an automobile, a building, or a landscaped area is a lighting fixture. An automobile, a building, or a landscaped area is not properly interpreted to be a lighting fixture.

In col. 1 lines 20-25 of Atchinson, which also is cited by the Examiner, Atchinson states that "Light emitting diode (LED) lighting systems are commonly used as individual elements or in groups for illuminating a large variety of objects. Typically, such lighting systems are arranged in generally linear rows and are disposed so as to provide decorative, advertising or safety oriented light sources. Conventionally, these lighting system rows might

be attached to a wire string such as exemplified by a "string of lights" used for Christmas tree decorations." The argument made above can be made here; to suggest that the lighting system is a light source as taught in claim 1 requires that an advertising device, a safety indicator, or a Christmas tree is a lighting fixture. This is not the case.

A combination of references cited under Section 103 must show all of the elements recited in an applicant's claims or the examiner must explain why the difference between the prior art and the claimed invention would have been obvious. What possible disclosure in Atchinson or the secondary reference to Pilcher *et al.* would have directed a skilled artisan to the feature of removably placing the light source in a curved three dimensional configuration within a lighting fixture? None has been indicated, and the alleged *prima facie* case of obviousness is fatally defective.

Here, there would be no reason for a skilled artisan to place the LED array of Atchinson into any sort of lighting fixture, since the LED array itself is complete and functional, without being placed into any sort of lighting fixture.

The Examiner further cites Pichler as:

disclos[ing] in at least columns 2 and 5 an analogous light source having a flexible organic light emitting diode layer on a single, flat, flexible, two-dimensional substrate, the diode layer including two electrodes, at least one of the electrodes being transparent" providing a thinner device. Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the light source of Pichler into the method of Atchinson *et al.* in order to provide a thinner device.

Pichler is directed to LCD backlights and graphic signage (col. 7 lines 16-37), and not to lighting. Pichler describes a method of laminating multiple, independent OLED devices together to provide a composite device having different light emission (*e.g.* colors or patterns). Other functional layers may also be provided in the laminated structure. However, Pichler does not describe flexing his laminated light-emitter, nor does he describe removably placing the light-emitter into a curved three-dimensional configuration within a lighting fixture as required by claim 1, element c. Moreover, there is no discussion in Pichler of shipping flexible elements (claim 1, element b).

Since Pichler does not relate to lighting, there would be no motivation to substitute the LCD backlight of Pichler for the LEDs of Atchinson. Indeed, it is hard to envision how one would “incorporate the light source of Pichler into the method of Atchinson *et al.* in order to provide a thinner device.” How would one incorporate an LCD backlight, no matter how flexible, in the device of Atchinson? Such a combination would entail replacing the LED point light sources of Atchinson with the graphic elements or backlight laminates of Pichler. Each of the laminates will have a separate substrate, possibly flexible, which then would be soldered to the flexible printed circuit board of Atchinson, in accordance with the teaching of Atchinson. However, the printed circuit board of Atchinson does not provide the hermetic seal necessary for a functional electroluminescent device, such as is disclosed in Pichler, to protect it from moisture. Thus, the OLED devices of Pichler cannot be formed on a flexible printed circuit board. Therefore, the skilled artisan would have to manufacture the light sources of Pichler on separate substrates, encapsulate each one, and then solder these separate substrates to Atchinson's printed circuit board. Not only does this go beyond the teaching in either reference, but also it results in a combination which no longer meets the requirements of claim 1 (“manufacturing an area emitting light source by depositing a flexible organic light emitting diode layer on a single, flat, flexible, two-dimensional substrate”). This is a further defect in the alleged *prima facie* case of obviousness.

The Examiner notes, on page 8 of the Final Rejection, that “one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references.” Applicant did not do this. Rather, applicant detailed features that were missing from the combination of references. Thus, applicant urged that:

Pichler *et al.* teaches organic light emitting devices. It is analogous to Atchinson *et al.* in that a plurality of individual devices is combined on a single substrate. Therefore the examiner urges that it would have been obvious to incorporate the OLED of Pichler *et al.* in the method of Atchinson *et al.* However, *even were this substitution to be made, the result would not result in the present invention. The combination still fails to teach the present invention because it does not overcome the failure of Atchinson to teach “removably placing the light source in a curved three dimensional configuration within a lighting fixture.” As noted above, the examiner has failed to explain what possible disclosure in Atchinson or the secondary reference to Pichler et al. would have directed a skilled artisan to the feature of removably placing the light*

*source in a curved three dimensional configuration within a lighting fixture.*

Applicant further argued that “[Pichler] fails to overcome the failure of Atchinson *et al.* to teach ‘flexing the single, flat, flexible two-dimensional substrate of the light source.’” This is not attacking the references individually; this is showing that neither reference alone or in combination would have directed a skilled artisan to particular features recited in applicant’s claims. Meanwhile, the Examiner has glossed over the failure of Atchinson to teach any sort of lighting fixture (which is one of applicant’s claim elements), merely noting that it is “not pictured,” without even suggesting what it might be.

In and Advisory Action the examiner urges that:

While the applicant argues that the cited lines of Atchinson do not disclose placing the light source in a curved three dimensional configuration within a lighting fixture, the examiner respectfully disagrees, as the cited portions of Atchinson disclose placing the light source in a curved three dimensional configuration in a number lighting fixtures (e.g. christmas tree, interior rear window of an automobile, etc.). Additionally, while the applicant argues that the LEDs of Atchinson are inflexible, the examiner asserts that the argument is moot because an array of diodes (i.e. the “light source”) is flexible (also note that Atchinson does not restrict the LEDs to being inflexible). While the applicant argues that one of ordinary skill in the art would not have used the backlight of Pichler as a light emitting element of the light source of Atchinson, the examiner asserts that this argument is also moot, as the examiner did not suggest that one of ordinary skill in the art would have been motivated to incorporate the backlight of Pichler into the light source of Atchinson but rather to incorporate the light emitting element of the backlight of Pichler as the light emitting element of the light source of Atchinson.

The first point stated in the Advisory Action is the examiner’s disagreement with applicant’s position that the Atchinson do not disclose placing the light source in a curved three dimensional configuration within a light fixture. He urges that the cited portions of Atchinson disclose placing the light source in a curved three dimensional configuration in a number of lighting fixtures. However, what Atchinson places in a three dimensional configuration is an **array** of separate **light sources**. The individual light sources are not flexed and placed in a curved three dimensional configuration. The individual light sources are inflexible, as explained in detail above.

The light source, according to claim 1, must include light-emitting materials deposited between electrodes in a substantially two-dimensional configuration. The light source of Atchinson provides multiple point source LEDs, employs a different manufacturing method (point sources surface mounted with soldering to a flexible substrate), and has a different structure from the claimed invention (an area light source deposited in layers in a two-dimensional configuration on a flexible substrate). This point is emphasized by the use in Atchinson of the word 'array' (col. 4, line 20). As noted above, the LEDs of Atchinson cannot be the light sources of the present invention since they are not formed on a flexible substrate and cannot be flexed and removably placed in a lighting fixture.

The examiner further argues that an "array of diodes" is a light source. However, applicant's claim 1 defines a light source as being "a flexible organic light emitting diode layer on a single, flat, flexible, two-dimensional substrate, said flexible organic light emitting diode layer including two electrodes, at least one of the electrodes being transparent." This clearly distinguishes from an array of diodes as set forth in Atchinson. The interpretation of the examiner that an array of diodes flexed into a three dimensional configuration suggests flexing a light source as defined in applicant's claims ignores the plain language of the claims.

While no *prima facie* case of obviousness exists with respect to claims 1-34, applicant now presents claim 35. Claim 35 more particularly recites manufacturing an electroluminescent area emitting light source layer by depositing, on a flat, flexible substrate in a substantially two-dimensional configuration, one or more layers of light emitting materials between electrodes and encapsulating the electroluminescent area emitting light source with a flexible encapsulating cover affixed to the flat, flexible substrate. The light sources of Atchinson are not manufactured on a flexible substrate but are separately manufactured on a crystalline substrate and then soldered onto a flexible printed circuit board. Atchinson does not deposit light emitting materials on a flat, flexible substrate nor does the light source qualify as a layer, nor is it substantially two-dimensional. Furthermore, the printed circuit board of Atchinson cannot provide the environmental protection necessary to an electroluminescent lamp, forcing the use of separate substrates and packaging, contrary to the structure recited in claim 35, which recites a flexible, encapsulating cover over the substrate.

A combination of Atchinson and Pichler will not result in the elements of claim 1. Such a combination might result in replacing the LED point light sources with the graphic



elements or backlight laminates of Pichler. Each of the laminates will have a separate substrate, possibly flexible, that are then soldered to the flexible printed circuit board of Atchinson. Note that the printed circuit board of Atchinson does not provide the hermetic seal necessary to an electroluminescent device to protect it from moisture. Thus, the OLED devices of Pichler cannot be formed on a flexible printed circuit board. Therefore, the light sources of Pichler must be manufactured (and encapsulated) on separate substrates and the separate substrates soldered to Atchinson's printed circuit board, so that the combination no longer meets the requirements of claim 35.

If there are any problems with this response, or if the examiner believes that a telephone interview would advance the prosecution of the present application, Applicant would appreciate a telephone call. In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this application is believed to be in condition for allowance, the notice of which is respectfully requested.

Respectfully submitted,

EASTMAN KODAK

SEPTEMBER 4, 2009

DATE

/BARBARA A. MCDOWELL/

BARBARA A. MCDOWELL

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